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well-known establishment at Rochester. From a commercial point of view, the venture must have been very successful, although our author was compelled, while in Ceylon, to bottle his snakes and fishes in methylated spirits, upon which the Ceylon authorities had collected a duty of four hundred per cent. He protested in vain, for the money had been paid by his bankers before his arrival on the scene, and the customs authorities refused to refund, even when he offered "to take the unlucky case of spirits through the custom-house, and bury it in a quiet corner of the back-yard, where it would not smell bad." The officers only replied, 'Couldn't do it, couldn't do it.' 'They had those rupees,' our author declares, 'and meant to keep them.'

Naturally, in the course of two years in the jungles of Ceylon, India, Selangore, and Borneo, one has many hair-breadth escapes. But the adventure, which he asserts was "ten times more dangerous than any I experienced with the head-hunters of Borneo," was experienced much nearer home. It was while engaged in skeletonizing some jackasses in the Emerald Isle that he was set upon by 'a mob of wild Irishmen,' who assailed him with long-handled hoes, on the ground that the donkeys had been murdered. He was finally allowed to depart by stealth, after having been boycotted for a few days, with his own bones intact, but without his asinine skeletons. These quotations will serve to show not merely the author's unhappy lack of skill in expression, but also the pleasant and truly American way he had of looking on mishaps which would have driven the average British sportsman to the *Times* or an insane-asylum.

One of the quaint features of the work, and one which we should have been very sorry to miss, is the way in which he loses the sportsman and narrator in the collector, and naïvely tells us where this or that stuffed effigy can be found. Thus, after describing an elephant hunt, and the subsequent skinning at a time when the elephant was several days older than when he died, he adds, "The old tusker, who fell under such romantic circumstances on the Animallai slope, now stands, still 'the monarch of all he surveys,' in the Museum of comparative zoölogy of Harvard university, Cambridge, Mass.

The whole volume is entertaining, though the most interesting portion, perhaps, is that wherein Borneo, with its head-hunting Dyaks, its tree-jumping gibbons, and its unpleasantly human orang-outangs, is described. Without disparaging the work of Wallace, Bock, and others, this is the best description of Borneo, so far as it goes, to be found in the books. Our author views the Dyak

in the innermost recesses of his house, and tells us how he eats, drinks, sleeps, dresses, and earns his living. It is worth noting that Mr. Hornaday takes issue with Wallace as to the maximum height of the orang-outang, which Wallace gives as four feet and two inches. Our author and his hunters killed or captured forty-three, no less than seven of which measured more than four feet two inches; one, a *Simia Wurbii*, measuring, when fresh, four feet and a half from the top of his head to the sole of his foot.

We wish that there was space to describe the manner in which Mr. Hornaday captured crocodiles with hook and line, and many other curious feats; but it is impossible. The book is finely illustrated with sketches, photographs, and a few other pictures. It further contains two moderately good maps, and but for its bulk would be a most welcome addition to the library.

ASTRONOMICAL NOTES.

First observation of Nova Andromedæ. — The earliest observation of the new star, thus far reported, was by M. Gully, director of the public observatory at Rouen, on Aug. 17; and as M. Tempel, director of the observatory at Florence, affirms that it was not visible on the 15th and 16th, we are not likely to get much nearer the time of its first appearance. In *l'Astronomie* for November, which gives the above facts, M. Trouvelot also states that a 13 mag. star, which precedes the *nova* about 20^s and is a little south of it, and which is now visible with an 8-inch, is not put down upon a drawing of the nebula which he made in 1874 with the 15-inch of the Harvard college observatory, and that he does not think it could have escaped him if as bright then as now. It would seem as if this nebula were an object that should be watched pretty constantly, and of which a series of comparable photographs at stated intervals would be especially valuable.

Wire-gauze screens as photometers. — Of late years the use of wire-gauze screens, one or more in number, over objectives, has come into use for several purposes. Over one of the halves of a heliometer-objective they are used to reduce the image of a bright star to approximate equality with that of a fainter star from the other half, an essential condition for the most accurate superposition of the two images. With a meridian-circle they are used to reduce the brighter stars to an approximate equality with the faintest that can be observed with satisfactory precision, or to investigate the difference of personal-equation for different magnitudes by taking different tallies of transit-wires, with screen off and on, at the same

transit. In the latter case Professor Holden points out the necessity (*Astr. nachr.*, 2690) of changing the illumination of the field with the change of screen, so that each magnitude may show against its customary degree of color, or brilliancy of background. Such screens may also be used for photometric purposes when once their co-efficients of transmission have been determined. Those having occasion to use them in this way will do well to consult a paper by Professor Langley (*Amer. Journ. sc.*, xxx. 210) on this subject. In this it is shown that the effective transmission co-efficients are decidedly different according as the luminous image is an extended surface, or practically a point like a star. In the latter case there is a central image surrounded by a system of diffraction images, into which a large part of the light goes; so much so, that Professor Langley found that a screen (of which one and two thicknesses transmitted .47 and .21 respectively of the full light upon a surface) gave only .18 and .02 for one and two thicknesses respectively, when measured by the brilliancy of the central image of a small pin-hole as a source of light.

Comparison stars. — M. Folie, director of the observatory of Bruxelles, Belgium, announces that he also is ready (see *Science*, vi. 427) to determine the apparent places of comparison stars for comets and asteroids, if those desiring such determinations will communicate the approximate star-places to him.

Rhodope rediscovered. — On Oct. 3 Palisa found and observed (166) Rhodope, the search for which we before noted (*Science*, vi. 333) as the occasion of the discovery of (250).

The coast-survey system of longitudes. — In Appendix 11 to the coast-survey report for 1884, Assistant Schott rediscusses all the telegraphic longitude work thus far done by the survey, including the three transatlantic cable-determinations of 1866, 1870, and 1872. The whole work now includes 158 individual determinations of $\Delta\lambda$. Of these, 53 belong to a network covering 33 stations extending from Paris to Omaha, thus furnishing 21 rigorous conditions to be fulfilled by the longitudes of the 33 stations, a much stronger system than that discussed in the report for 1880. The average probable-error of single determination of $\Delta\lambda$, including every thing since the origin in 1846, comes out 0^s.038, as determined *a priori* from the observations themselves, or only 0^s.016 as the average since 1878, when improved methods were introduced. From the residual corrections, however, which result from the discussion, as necessary to make the 53 values of $\Delta\lambda$ satisfy the 21 rigorous conditions, the probable-error of a single $\Delta\lambda$ comes out 0^s.048, indicating, as compared with 0^s.038,

that there are still some outstanding errors, probably of observers' personal-equation, which the *a priori* probable-errors do not cover. There is only one resulting correction to an observed value which reaches 0^s.1, while in the latest adjusted system of European longitudes, which involves 59 measures with 26 conditions, although the average probable-error of a $\Delta\lambda$ comes out only 0^s.035, yet there are six corrections to observed values which exceed 0^s.1. It will be seen that the American work compares very favorably with the European, while it includes the three difficult transatlantic cable links. Mr. Schott has accepted the decision of the Meridian conference, and in his final table prints longitudes east of Greenwich as +, and west as —. He has also gone through the tedious process of computing the probable-error of a function of adjusted values for the longitudes of Cambridge and Washington, which come out —

Cambridge, $\lambda = -4^h 44^m 30^s.993 \pm 0^s.041$,

Washington, $\lambda = -5^h 8^m 12^s.038 \pm 0^s.042$.

An interesting paragraph at the end shows that the rather remarkable agreement in the three transatlantic determinations of the longitude of the Harvard college observatory, as given in the report for 1874, was more an agreement of adjustment than of observation, and that the observed values have really a range of 0^s.13. This is the most complete discussion of a network of longitude determinations yet made, and it well sustains the high reputation which the scientific work of the coast survey bears at home and abroad, very much of which is due to the thorough work of Assistant Schott and his efficient computing division.

NOTES AND NEWS.

WHAT is in some points a remarkable circular is prefixed to the current number of the *Zeitschrift für philosophie und philosophische kritik*, the most conservative and old-fashioned of periodicals. The management of the *zeitschrift* announces a new policy in view of the tendency of the best thought of the day, which is "to strive for a revival of the idealistic view of the universe, it being compelled thereto not less by practical than by scientific considerations." Therefore the polemical character of the *zeitschrift* will cease, the reason for it having been removed. In the second place, the vast amount of criticism will give way to explanatory sketches and sympathetic notices of new books and results, so that no investigation may have injustice done it at the hands of a reviewer of an opposite school. More attention is to be paid to the historical aspect of philosophy and the social sciences, and in especial will the work of countries other than Germany receive its share